Air Force Packaging Technology and Engineering Facility

1998 Annual Report









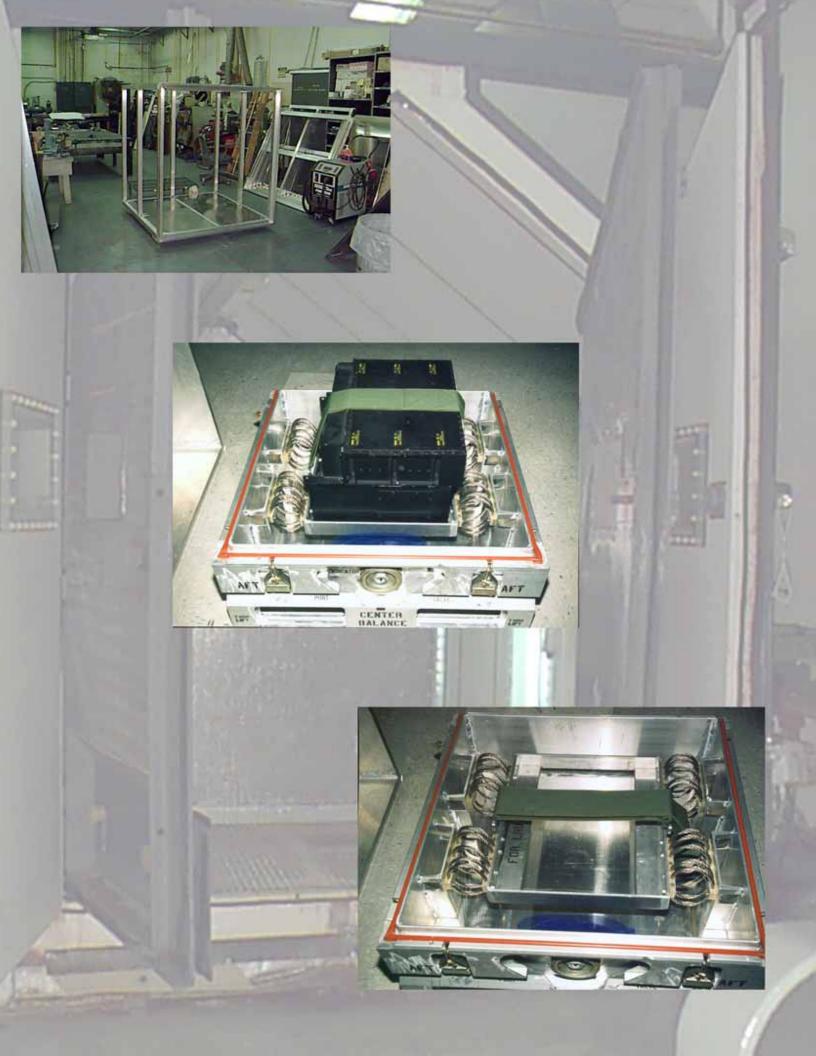












Air Force Packaging And Engineering Facility

AIR FORCE PACKAGING TECHNOLOGY AND ENGINEERING FACILITY

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<u>AFPTEF</u>

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Commemorative Watercolor of Les Clarke by Tom Cadogan (used with permission)

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HIGHLIGHTS FROM THE CHIEF

1998 was a very eventful year for the Air Force Packaging Technology and Engineering Facility (AFPTEF). The design branch was very active with numerous projects supporting the Air Force and DoD components. The materials branch began a supporting role for DLA with pop testing. The policy branch actively provided

guidance to all Air Force major commands and DoD components with policy relative to general packaging operations and preparing hazardous materials for military air shipments. As you turn the pages and read the accompanying articles, you will see the accomplishments achieved by the AFPTEF staff.

As we all know, the Air Force, along with the rest of DoD, is actively engaged in downsizing. This of course means eliminating manpower. AFPTEF is not immune to this downsizing. After three years of fighting for survival, we have been notified that AFMC has decided that AFPTEF will cease operations in FY 2001.

The command has determined that the services provided by the design and materials branch could be obtained from the private sector. These functions were not part of an A-76 study. In the future, if an organization requires packaging design or materials testing services, they will need to rely on their prime contractor or find another organization to perform the work. These



services will no longer be available within the Air Force for non-munitions packaging. The packaging organization at Eglin AFB, Fl will be available to support munitions packaging requirements.

The packaging policy branch will continue to exist and provide services. Their mission will not change in the future. They will continue to prepare and update AFJMAN 24-204. They will continue to be available to answer questions relating to hazardous materials and general packaging. Waiver requests will also continue to be processed by them. The packaging policy branch will expand and update SPIDDS, HAZMAT BBS and PACKPROBE.

AFPTEF worked very hard over the past several years to enable the "decision makers" to understand the mission support provided to the DoD. We received tremendous backing from our customers in this effort. In FY 95, we received about \$350,000 in project funds to provide support for our customers. That amount increased to approximately \$850,000 in FY 96. We enjoyed our best year ever in FY 97 when we received over \$1.2 million to do projects for our customers. We should be proud of the mission support we provided. These numbers are a testimony to the important work that was accomplished by the AFPTEF staff. Those numbers, however, were not enough to convince the command that we should continue to provide services and not be eliminated. Unfortunately, logic does not always play a part in decision making. AFPTEF was a target of opportunity that could not be resisted.

The decision to downsize AFPTEF and the elimination of the design and materials branches will impact the Air Force mission and much of DoD in the future. You will no longer have an impartial group to evaluate a contractor's proposal. You will not know if the proposed price is reasonable. Worst of all, you will not know if the proposed packaging design will protect the item. Over the years, we have seen many insufficient packaging designs that did not protect the items during shipping and handling within the Defense Transportation System

(DTS). Items arrived at their destination with high failure rates and were unserviceable. Mission support was weakened and combat readiness was compromised. I believe more of this will occur in the future.

This annual report also marks the end of my tenure as the director of AFPTEF. I have decided to retire on 28 February 1999. I first came to AFPTEF in May 1993. The past 5 years has been the most enjoyable time I have spent in my Air Force civil service career. It has been a great pleasure to be associated with an outstanding group of professionals. Each person was committed to providing our customers with the very best packaging that was available. To each person who has worked here over the past 5 years, I would like to say "Thank You" for allowing me to be part of this organization. I'm particularly proud of how you've stepped up to exceed our customers' requirements. When our customers' called, you've responded magnificently. I only wish that I could have been successful in fighting off the downsizing that is rapidly approaching. For that lack of success, I'm very sorry.

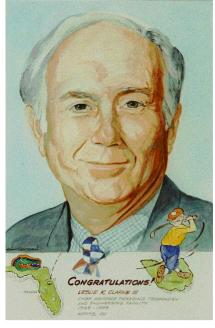
As a result of our mission change, it has been decided that this will be the last annual report we will publish. Over the next two years, our workload will diminish thus ceasing the publication of an annual report.

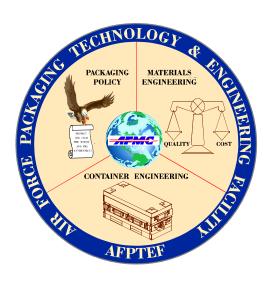
As AFPTEF and I fade into the sunset, I wish to thank all of our supporters and customers to whom we have provided our services during the 46 year plus tenure of the Air Force Packaging Technology and Engineering Facility.

Good bye and best wishes to you all! Leslie K. Clarke, III

Leslie K. Clarke III

AFPTEF AFPTEF





Artist rendering by Tom Cadogan

AFPTEF ACCOMPLISHMENTS By Larry Wood

AFPTEF as an organization has contributed directly to military readiness and national defense. Many contributions are the result of collective work by many people and can not be attributed to one individual. In a few cases, the work was so significant that we can say it would not have happened without the impetus provided by a particular individual. The following events illustrate the high caliber of AFPEA/AFPTEF people and their contributions to the defense of our country.

AFPTEF Contributions to National Defense are the result of both past and present employees. The following subjects either would be totally absent or greatly reduced in scope without the foresight and drive imparted to them by specific people. The Air Force and the DoD are a better place today because of these people and their dedicated efforts.

AFPTEF

AIR FORCE / DLA / DOD REUSABLE CONTAINER PROGRAM

Jack Thompson, as Director of AFPEA for over 15 years used his considerable influence to ensure the development of the Fastpack reusable container program. Fastpack is a name for the system of small, cheap, reliable, reusable containers developed by AFPEA in the 1970s. This system is also referred to by the federal specification PPP-C-1672 that AFPEA wrote. Fastpack containers have been saving millions of dollars every year and are the standard by which the DoD judges the success of other reusable container programs. When DLA assumed the stock distribution activities, they began using this system to review the other DoD Commands' reusable container processes.

AFPTEF

COMPUTER AIDED PACKAGING

Ralph Zynda was the Chief of the AFPEA Design Branch for most of the 1970s and 1980s. It was Ralph that began the Computer Aided Design System that today is reflected in SPIDDS. The System began here at AFPEA as a mainframe computer with terminals at each ALC. When the PC was developed it evolved to a central data storage here with each ALC maintaining it's own equipment. The DPPG directed this system

to be used by all of the DoD packaging offices, with AFPTEF becoming a central storage site for all packaging drawings. Subsequent direction has modified this decision to include other options which will include SPIDDS as either part or most of another DoD system, but the CAD/SPIDDS system remains the only working system of its kind in the packaging field

AFPTEF

VIBRATION TESTING FOR HAZARDOUS MATERIALS CONTAINERS

Matt Venetos, the Chief of the AFPEA Materials Branch from 1970 to 1989 was successful in convincing the DOT to include a vibration test in the Code of Federal Regulations for testing Hazardous Materials Containers. Today all of these containers must undergo a standardized vibration test to simulate actual field transportation before they are accepted as certified containers. This test was insisted upon because AFPTEF had always included vibration testing in non-hazardous evaluation work and could not accept the idea of hazardous material containers undergoing less severe testing.

Also of interest is his work on Transportation Recorders. AFPEA/AFPTEF was responsible for writing government contracts to develop recording devices for monitoring transportation shipping forces and conditions. An initial unit was developed about 1970 with a second-generation unit, also AFPTEF developed, about 1987. These units have become industry standard requirements and have found use on both military and commercial ship, rail, truck and space shuttle shipments.

AFPTEF

ENVIRONMENTALLY FRIENDLY CUSHIONING MATERIALS

Larry Wood, Chief of the Materials branch since 1989 was a significant force in the environmental movement to remove Chloroflurocarbon (CFC also known as FREON) blowing agents from cushioning materials. Under pressure from AFPEA the foam cushion-manufacturing industry changed the formulation of their products to be environmentally friendly. During the process, the industry was intent on using the Halogenated Chloflurocarbon (HCFC) materials as a substitute, but AFPTEF pressure was

focused on tasking the industry to progress to a completely benign product. This was accomplished on all of the foam cushioning materials in use by both industry and government for packaging.

An additional AFPTEF task subsequently arose. Polyethylene, not managed by AFPTEF, was allowed to be manufactured with a flammable chemical — isobutane. In 1994, this caused a military shipping container to explode, injuring the people working on it. Subsequent investigation revealed that the workers were violating safety rules and welding on a closed container. AFPTEF figured prominently in the DoD investigation team and worked closely with the other services to test and evaluate alternative products. Finally, AFPTEF took over complete control of the material and rewrote the polyethylene specifications to include safe limits on flammable components.

AFPTEF

AIRCRAFT PRESERVATION AND CORROSION CONTROL

Avery Watson worked for AFPEA for over 20 years and was fortunate to have been an influential agent in several issues of national importance. Aircraft Preservation, specifically the coatings and covers used to protect our used aircraft at Davis-Monthan AFB in Tucson, are today representative of the work he initiated. Also in general use is a rubber tire preservation product he worked to institutionalize. These projects have saved and continue to save millions of dollars annually by reducing the cost of replacement parts.

During Operation Desert Shield, AFPTEF tested aircraft windshield coatings for program offices interested in the harsh desert environment. No other test lab was equipped or available to perform this test in the short time available. National Security prevented an extended contracting process with a lengthy contractor bidding process. All work was completed with results provided prior to Operation Desert Storm.

A 1988 AFPEA investigation into corrosion of aircraft parts in storage revealed that the cushion material commonly known as "Bubble Wrap" was corroding expensive parts. At that time, the material included a layer of vanilidene chloride (commonly known as

Saran). This chloride compound was corroding parts in storage. At the insistence of AFPEA, all of the manufacturers of this material changed their production process to another more benign material. Since that time all commercial and government "Bubble Wrap" has been manufactured to our requirements.

AFPTEF

STANDARDIZATION OF CUSHION TESTERS

Dave Filsinger changed the world of cushion manufacturing with the development of a standard method for cushion tester comparison. Cushioning materials have been used for many years to protect items from damage during shipment. Dynamic cushion testing machines were developed to measure the shock mitigating properties of these materials. These machines measured the reaction force induced by a material over a wide range of loads and impact velocities. By knowing these properties, it was possible to use the materials more effectively. Unfortunately, not all testers produced the same result on the same material. What was needed was a standard test material for comparing machines and diagnosing tester problems. This material had to be durable enough to withstand repeated impacts from a tester without deterioration and produce reaction forces of 100 G's or less over the useful weight and impact velocity range of the tester. Dave's item, called a Pyramid Pad, was developed by AFPTEF and used to compare cushion test machines. Prior to this work, there was no standard of comparison and all test machines were largely independently adjusted. Today the Universities, Machine Manufacturers and Industrial Cushion Material Manufacturers have a method of comparing and standardizing test results.

AFPTEF

1985 SW ASIA VEHICLE STORAGE TEST

Eileen Foley participated in a storage test of wheeled and tracked vehicles. This was a long-term test on site in the Southwest Asia area to determine how to preserve and store military vehicles and have them available for immediate use. The results of the test concluded with specific recommendations that have been adopted by all services and contribute directly to national defense today.

AFPTER

DOD POP TEST CONTRACT

Ted Smith wrote the first government contract for Hazardous Material Performance Oriented Packaging (POP) Container testing. When the government began POP testing the volume of testing was too large for any of the existing test facilities to undertake. OASD chartered AFPEA with the responsibility to issue and administer a test contract to ensure compliance with the new regulations. Today, some of the test requirements have been imposed on the contractors, but for the balance of special military products AFPTEF remains one of the 3 government test facilities certifying these important containers to support military readiness.

AFPTEF

AFPTEF SUCCESS STORIES By Robbin Miller and Caroline Buckey

COMBAT TALON II

The AFPTEF designed 10 Combat Talon II Support Equipment Containers for Special Operations. The System Program Office was having many problems with their prime contractor wanting to charge exorbitant prices for Support Equipment and Specialized Containers of approximately \$17M. We suggested they let us try to combine the support equipment within the design of the containers. We succeeded in designing the support equipment into the container design. To date, we have saved the AF 16 million. There were also great savings in time, space, and weight requirements during an operation. AFPTEF won a Gold Star from the International Organization of Packaging Professionals in the Military/Industrial Category in 1990 for the design of the Ku-band Antenna Container

C-17

The C-17 Aircraft has one Loadmaster/Observer Seat per aircraft. The program office was having trouble with the prime contractor charging too much and taking too long in manufacturing the seat so they asked the 4950th Modification Shop at Wright-Patterson AFB to fabricate 120 seats. The 4950th ABW fabricated the required number of seats and prepared the drawings. After testing they found that

modifications to the seats were required. Unfortunately, the 4950th ABW Modification Shop had closed. We had just finished a design and first site activation fabrication of 15 Crash Recovery System containers for the SPO in which we saved them \$412K. They knew we had the engineering and shop capability to modify the seats, so in 1997, they requested that we take over the modification of the seats. The C-17 SPO has come to rely on us for any changes to the seat. They are concerned that we are closing and that they will not get the engineering and shop support that they have come to rely upon.

AMCOM

In 1996 the CCAWS office at Redstone Arsenal asked AFPTEF to design a new container for the Bradlev Integrated Sight Unit. The unit was being damaged repeatedly in its current drum container. They were also upgrading the unit and the drum could not accommodate the upgrade. AFPTEF successfully designed, prototyped and tested two containers and saved the Army more than \$500K. In March of 1999 the program office asked us to fabricate 4 containers for first site activation with an April delivery date. We could not meet this schedule due to previous commitments/work load. The program office tried to contract out this requirement but could not find a contractor that would even bid due to the small quantity and long lead times on materials. Therefore, they came back to AFPTEF and asked us to do the job with an August 1999 delivery date. We accepted the project on 7 April saving the Army an additional \$100K and provided a schedule they can live with.

WR-ALC, F-15

WR-ALC/LFLA asked us to design an environmentally sealed container for the One and Two-Man F-15 Canopy. Humidity deforms the canopy, the glass sections, to a point where it will not fit the aircraft. Each section has to be replaced at a cost of \$13K each; a canopy uses two sections. We decided to incorporate the maintenance-handling frame into the design of the container. Each frame supplied by a contractor costs \$7K. Savings to the Air Force because AFPTEF designed the container and

frame was over \$750K. To date savings on glass replacement is well over a million dollars and counting.

WR-ALC, B-52 ALQ-172 LRU'S

In 1997 General Smith, Base Commander at Robins AFB, sent a message to HQ LG asking AFPTEF to evaluate a damage problem with the B-52 ALQ-172 LRU's. AFPTEF engineers immediately went to Robins and evaluated the packaging and transportation scenario of the black boxes. Maintenance would repair a unit ship it to the field and the unit would not work when it got there. Average cost to repair each unit is \$10K. The solution to the problem was a three-phase program. First, immediately change the handling procedures between depot maintenance and supply. Second, re-design the short life packaging (fiberboard and wood boxes) to reduce damage. The items had actually become more fragile over time. Third, design long-life specialized containers to alleviate the problem completely. We were able to design three different containers to package all 8 LRU's. This reduces production and O&M costs. Once the specialized containers are in place, June 1999, they will act as handling fixtures as well as shipping and storage containers. Due to the age of the system, the contractor did not want the task of solving this problem and quoted an exorbitant cost to do so. Savings to the Air Force to date are over \$1M and counting.

AFPTEF

THE HISTORY OF AFPEA/AFPTEF By Larry A. Wood

In commemoration of the AFPEA/AFPTEF's 45 plus years of service to Air Force and DoD, we decided that a short synopsis of the organizational history would be valuable. This chronology depicts the stormy transitions that the organization has undergone in the years since formation. As a unit, it was formed at WPAFB, moved to Brookley AFB and finally moved back to WPAFB in 1967. This process was then followed by numerous reorganizations, organizational name changes and several contracting out studies.

Prior to 1952, the packaging function was the Packaging Branch, Engineering Standards Division at Wright Field and had been organized under the Army Air Corps. This organization was in existence by about September 1944, as reported by Mr. Al



Olevitch, a former employee. Al was a 2nd. Lt. assigned to this organization to work on corrosion problems. On 21 Apr 1952 The Air Material Command (AMC) Organizational Directive 20-670 established the "Packaging Division" of the AFSC Materials Laboratory. This action placed the Packaging Facility one step below laboratory status. In 1955 the Packaging Engineering Section was formed at Brookley AFB. Although some personnel transfers occurred, the organization was largely staffed by Brookley from local talent. On 6 Oct 1959 The Packaging Engineering function was formally delegated to ARDC Brookley AFB (MOAMA), per AFR 71-1. And on 22 May 1964 was established as a



Named Activity - "Air Force Packaging Evaluation Agency" at Brookley AFB, per Special Order G-29.

AFPEA was transferred to WPAFB (HQ AFLC) on 6 July 1967. Although this action really began in 1966, the process required considerable time and effort. When Brookley was being decommissioned, a study was begun to assess the value and best location for the unit. The completed study identified the organization as of significant value to be retained and recommended that the work be assigned to a location of importance. The decision to transfer AFPEA to HQ AFLC, WPAFB was based on a few important considerations. It needed to be at a higher organization level to be more effective in carrying out the mission. While at Brookley, AFPEA primarily did work for Brookley. The need to serve a greater customer base was a primary consideration. The proximity of other important Air Force organizations at WPAFB, such as the Materials Lab to provide technical support was a consideration. Also, location near the major System Program Offices (SPOs) would provide opportunities to work engineering solutions for new weapon systems early in the development phase.

The transfer took from 1966 to 1970 to complete and attain operational status. A hard dollar cost of \$350,000 for facilities renovation was expended. The loss of effectiveness resulting from the move cannot be accurately calculated. Total losses have been estimated to exceed \$20 million, mostly due to programs that were adversely impacted by lack of AFPEA support during the move. Additional losses were personnel reassignment, transfer and subsequent rehiring. Of the 41 Brookley employees, only 5 elected to move to WPAFB and two of these people moved back south within a short time. This required a complete rehiring and organizational rebuilding. After AFPEA moved to Wright-Patterson many SPO projects were begun. Our most notable projects during the early years were:

- Ground Launch Cruise War Reserve Supply Kit
- Flexible Engine Container Development
- Fire Retardant Fiberboard Containers Evaluation

- F-15/A-10 Nested Fuel Tank Container Evaluation
- F-16 Fire Control Radar System Reusable Fiberglass Shipping Containers Evaluation
- Air Launch Cruise Missile Engine Containers Evaluation/Redesign
- F-15 LN-31 Inertial Measurement Unit Containers Improvement
- Laser Acquisition Electronic Units Reusable Containers Evaluation
- F-15 ASN-108 Displacement Gyro Containers Evaluation
- F-11 Navigation Computer Handling Aid Design
- F-15 Core Engine (F-100-PW-100) Module Container
- Developed First Self-Contained Transportation Recorder

During the 1980s, AFPEA was reassigned several times. The two most notable changes were to HQ Air Force Logistics Command (AFLC) by Special Order GA-24, signed by William R. Carroll, Colonel, USAF and Reassignment to the Air Force Distribution Agency (AFDA) on 16 Feb 1987. The Redesignation from Agency to Activity by Special Order GA-11, dated 19 Feb 1987. It was not acceptable to have one Agency working for another Agency. The mid-1980s saw a major shift in AFPEA workload from just solving problems to pro-actively seeking out Program Office needs and providing specific design solutions for them. This began a new era where we were able to prevent packaging problems instead of trying to field-fix existing containers. Our 1980s projects included:

- C-5A Displacement Gyro Packaging and Shipping Analysis
- T-38 Displacement Gyro Pack Redesign
- F-105 Pitch Rate Gyro Pack Evaluation/Redesign

- ALS 30MM CNU-332/E Container Qualification Testing
- Air/Ground Launched Cruise Missile Navigation Container Evaluation
- MK-82 Bombs Vibration Testing
- Ground Launched Cruise Missile War Reserve Supply Kit Container
- Maverick Missile CNU-263/E Container Testing (Swiss Air Force)
- F-15 Conformal Fuel Tank Container Design Support
- F-4/F-15 Redesigned 600-Gallon Fuel Tank Bi-Pac Container Evaluation and Testing
- C-130 Combat Talon II KU-Band Antenna CNU-459/E Container Testing
- C-130 Combat Talon II Nose Radome Container Design
- M-16 Weapons Container Engineering Support
- Maverick Missile CNU-399/425 Container Testing
- Maverick Missile CNU-445 Container Testing
- MSA Biological Chemical Mask Container Testing
- F-16 LANTIRN Pod Container Program Design Support



On 1 Jul 1991 the Packaging Policy office was reassigned as a branch of AFPEA and physically moved into Building 70. Even though the Policy group had been co-located with AFPEA in Building 70 during the 1967-1975 timeframe, it was separately managed. This reassignment marks the first merger of these two packaging functions within the Air Force. Concurrently the Air Force restructuring changed the office symbol from HQ AFLC/DSTZ to HQ AFLC/LGTP.

On 1 Jul 1992, Air Force Materiel Command (AFMC) was formed by consolidating the missions, talents, and expertise of both AFLC and Air Force Systems Command (AFSC). AFPEA officially ended on 1 Oct 94, when the Air Force formed the AFMC Logistics Support Office (LSO) and we were renamed AFPTEF. During the 1990s we greatly expanded our design capability with parametric computer design systems



and rapid prototyping. The prototyping was greatly assisted by the addition of numerical-control machining equipment with computer linking. The container testing was also upgraded with the purchase of nearly \$1M of new chambers, vibration tables and ancillary test equipment. This put AFPTEF in the position of being one of the best equipped organizations of its type in the government. Notable projects worked on in the 1990s have included:

- Transportable Collective Protection System Container System
- Department of Transportation Steel Drum Analysis
- CNU-502/E Container Qualification Testing
- F-15 Windshield Coating Ultra-Violet Radiation Testing (Desert Storm Support)
- Department of Justice Steel Drum Testing
- F-15 Canopy Container Design and Testing
- DoD Flammable Hazard Investigation Incident Management
- U. S. Air Force Family of Munitions Containers Design and Testing
- MILSTAR Container Group Qualifications Testing
- B-52 ALQ-172 LRU Multiple Container Designs and Qualification Testing
- U.S. Postal Service Mail Trays Evaluation
- United Nations Special Fuels Drum for Transport of Nitric Acid POP Testing
- B-1 Oxygen Analyzer Transportation Testing
- Air Force Radio and Television Service Video Tape Container Qualification Testing
- NASA Lithium Battery Container Design and Transporation Support

- NASA Hubble Space Telescope Flight Support System Container Design and Testing
- C-17 Crash Recovery Air Bags Container Design and Testing
- U. S. Army ATCOM Aviation Spare Parts Containers Design and Testing
- U. S. Army MICOM Bradley Fighting Vehicle Integrated Sight Unit Container Design/Testing
- JOINT STARS Remote Transportable Memory Modules Transit Case Design and Testing
- United Nations Foreign Munitions Containers POP Testing
- NASA Earth Observing System Container Design and Testing
- United Nations/DLA Hazardous Materials Containers POP Testing

The AFPTEF history is rich with past experience and capability. There are many DoD organizations and programs that we have had positive influences upon. Many customers have repeatedly requested follow on support. Our future will be focused on supporting these valuable customers and searching for ways to support new ones.



ADMINISTRATION UPDATE By Sherry Buchanan

Downsizing, rightsizing, privatizing, restructuring, realignment, outsourcing, competitive sourcing, cost-cutting, city-base concept, it's enough to make your head spin. But no matter what you call it, the current political climate has decreed that positions will be cut and our function will be policy. That means that thousands of dollars worth of equipment must be routed to other organizations or disposed of through Defense Reutilization Management Office (DRMO). So how would

someone know that a nomenclature of "metal cutting s" and a National Stock Number (NSN) of 3405 PV10A2PC, is a Marvel metal cutting saw? It cuts metal anywhere from 1/8" to 10" or 12" thick and therefore could be a vital asset to another organization. How do you let other organizations know what is available? How can we reduce the



confusion of identifying equipment items? During 1997 we made an effort to digitally photograph every piece of equipment and match it with its corresponding NSN and nomenclature. During 1998 we have started taking that initiative one step further. We have designed a Hypertext Markup Language (HTML) file that contains an index and link to each picture. Each picture is labeled with its NSN and nomenclature. This could easily be E-mailed to any organization

considering acquiring some of our equipment. The equipment custodians can pull it up at any time to appraise equipment items. Additional information concerning the transfer of each item can easily be added to the record. This visual, electronic record will increase the accuracy and efficiency of the disposition of equipment items.





LIGHTWEIGHT CONTAINER EXTRUSIONS By Keith A. Vossler

AFPTEF is developing three new aluminum extrusions for long-life aluminum containers with short width and height, but long length dimensions. These extrusions will reduce aluminum container tare weight and will allow aluminum containers to be more competitive with wood containers based on container weight.

The Lower Container Lid Extrusion retains/positions the container gasket. The Container Upper Base Extrusion is the container gasket-sealing surface. The Lower Base Extrusion (a double wall extrusion) joins the container sidewalls to the base sheet (floor) and provides structural rigidity to the container. Most extrusion walls are 3 millimeter thick. Since all extrusions accept aluminum sheet material, container base and lid wall heights can be varied. Container designs can be quickly modified to customer requirements.

Containers can be equipped with a desiccant port, pressure relief valve, humidity indicator, air fill valve, records receptacle, lifting rings, handles, and cam-over-center latches. Stacking features and skids can be incorporated. Container life cycle is estimated at 20 years.

In addition to cutting container weight, fabrication methods employing structural adhesives and riveting will be investigated to cut container fabrication costs

A container is scheduled for prototyping and qualification testing in early spring 1999.

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ASTM COMMITTEE D-10 ON PACKAGING By Keith A. Vossler

AFPTEF is represented on the American Society for Testing and Materials, ASTM, Committee D-10 on Packaging. The scope of this committee is the promotion of knowledge in, and the development of standards for packaging. Standards include terminology, practices, test methods, specifications, guides and classifications (including dimensions).

AFPTEF is a voting member of the committee and reviews the ballots for Division I, General, and Division II, Shipping Containers, for issues affecting the Air Force. A few of the D-10 Subcommittees and Task Groups AFPTEF has been active in during the past year are listed below.

The ASTM/DoD Federal Agencies Packaging Liaison Group addresses mutual government/industry packaging issues. The Group is identifying and prioritizing which government packaging specifications should be converted to ASTM specifications.

The D10.26 Subcommittee on Shipping Containers has converted several Military and Federal container specifications into ASTM specifications. The following documents are now available from ASTM:

D 6199	- Specification for Quality of Wood Members of Containers and Pallets (Conversion of MIL-STD-721 – Quality of Wood Members for Containers and Pallets)	
D 6251	- Standard Specification for Wood-cleated Panelboard Shipping Boxes (Conversion of PPP-B-576 - Wood-cleated Panelboard Boxes)	
D 6254	- Standard Specification for Wirebound Pallet Type Wood Boxes (Conversion of PPP-B-587 - Wirebound Pallet Type Wood Boxes)	
D 6254	- Standard Specification for Steel or Aluminum Slotted Angle Crates (Conversion of MIL-C-9897 - Slotted Angle, Steel or Aluminum Crates, For Lightweight Airframe Components and Bulky Items)	
D 6256	- Standard Specification for Wood-cleated Shipping Boxes with Skidded, Load-Bearing Bases (Conversion of MIL-B-26195 - Load-bearing Base, Skidded, Wood-cleated Boxes)	

The D 4169 Task Group has completed work on the reorganization of D 4169 – Standard Practice for Performance Testing of Shipping Containers and Systems. Distribution Cycle 18 (Government Testing) has been reorganized and clarified. The revised document, D4169-98, is available. Work is continuing on conversion of the following documents:

FTMS 101	-Method 2024, Federal Test Method Standard 101, Method 2024, Heat-Sealed Seam Test			
MIL-C-104	-Crates, Wood: Lumber and Plywood Sheathed, Nailed, and Bolted			
MIL-B-117	-Bags, Sleeves, and Tubing			
PPP-B-585	-Boxes, Wood, Wirebound			
MIL-B-2427	-Box, Ammunition, Wood, Nailed			
MIL-T-43036	-Tape, Pressure-Sensitive Adhesive, Plastic Film, (for Sealing Fiber Containers and Cans)			
MIL-B-46506	-Boxes, Ammunition Packing, Wood, Wirebound			

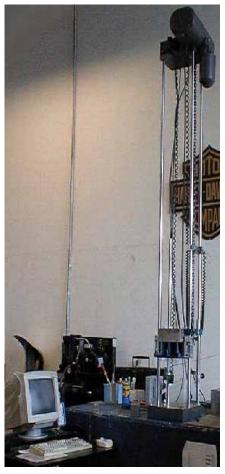
Note: Keith Vossler has since moved to the Air Force Research Laboratory. The new point of contact for ASTM issues is Ms. Caroline Buckey, AFMC LSO/LOPD, DSN 787-8434 or 937-257-8434.

DEFENSE AMMUNITION PACKAGING COUNCIL CUSHION RESEARCH By Caroline Buckey

In response to the Defense Ammunition Packaging Council (DAPC), AFPTEF commenced DAPC Project J3, "Development of Improved Anti-static Cushioning Materials and Dynamic Performance Testing for Ammunition Containers. This is a joint-service project managed by the AFPTEF and coordinated with the US Army Packaging Division, Picatinny Arsenal, NJ, the Packaging Handling, Storage and Transportability Center at Naval Weapons Station Earle, NJ and the US Marine Corps, Naval Surface Warfare Center, Crane IN.

This research consisted of development of cushion curves for anti-static, non-ozone-depleting and non-flammable cushion materials. Lansmont Corporation performed the cushion curve testing. AFPTEF chose to contract out this testing because of its manpower requirements and because of the repetitive nature of the testing. Lansmont tested 10 different materials with two different manufacturers for each material. Lansmont generated 400 curves. For statistical reasons, and because of the static stress points needed, each curve required 150 cushion drops. Below is a listing of the materials tested:

Material No.	MATERIAL		
1	2.0 PCF Crosslinked Polyethylene (PPP-C-1752 TY I, CL 2, GR B) Note: PCF = Pound per Cubic Foot		
2	4.0 PCF Crosslinked Polyethylene (PPP-C-1752 TYIII, CL 2, GR B)		
3	2.8 PCF Expanded Bead Polyethylene (PPP-C-1752 TYIII, CL 2, GR B)		
4	2.8 PCF Expanded Bead Polypropylene (PPP-C-1752 TY III,CL 2, GR B)		
5	MIL-P-26514, TY III, CL 2, GR C (Polyurethane)		
6	MIL-P-26514, TY III, CL 2, GR A (Polyurethane)		
7	MIL-P-26514, TY III, CL 2, GR B (Polyurethane)		
8	MIL-F-83671, CLASS III (Foam-in-Place)		
9	MIL-F-83671, CLASS II, GR B (Foam-in-Place)		
10	PPP-C-850, TY I, CL 4 (Polystyrene)		





Lansmont Model 23 Cushion Tester and Data Acquisition Setup

Lansmont completed testing in September of 1998. Container designers will use the cushion curves to determine the cost, type, and amount of cushioning needed in the containers to protect the item. AFPTEF is analyzing the data for use by the DOD Packaging community.

Point of Contact: Ms. Caroline Buckey, AFMC LSO/LOPD DSN 787-8434 or 937-257-8434



Figure 2. Natick Container

NATICK CONTAINER By Caroline Buckey

In September of 1997, the US Army Natick Research Development and Engineering Center requested the Air Force Packaging Technology and Engineering Facility design, fabricate, and test a lightweight container, which would hold a variety of equipment.

This container was designed using thinner-walled extrusions to decrease the total container weight for shipping and handling purposes. This aluminum container weighs approximately one-third of the weight of previously designed containers. AFPTEF completed the prototype in September of 1998 and performed preliminary testing on the container to include leak testing and tie-down strength testing. AFPTEF shipped the container to the users on 30 Sep 98. The users will ship the container back to AFPTEF for further testing and modifications after they have evaluated the container. Point of Contact: Ms. Caroline Buckey, AFMC LSO/LOPD, DSN 787-8434 or 937-257-8434.



Figure 1. Tie-Down Strength Test on Natick Container Base

MODIFICATION OF C-17 AIRCRAFT SEATS By Caroline Buckey

In June of 1997, the C-17 Program Office requested assistance from AFPTEF in the modification of the C-17 Loadmaster/Observer Aircraft Seat. AFPTEF is providing engineering and fabrication support to the C-17 Program Office. The engineering support includes designing the modifications, updating the drawings, and acting as a technical consultant on the aircraft seat flammability tests. Fabrication support includes modifying approximately 120 aircraft seats and their packaging to meet the new requirements. AFPTEF completed initial modifications in March, 1998. The C-17 Program Office requested additional modifications in September, 1998. AFPTEF expects to complete the additional modifications by December, 1999. Point of Contact: Ms. Caroline Buckey, AFMC LSO/LOPD DSN 787-8434 or 937-257-8434





C-17 AIRCRAFT SEATS PACKAGED IN CRATE.

PROFILE OF CAROLINE BUCKEY

Ms. Caroline Buckey has worked for the Air Force Packaging Technology and Engineering Facility for 12 years as a Mechanical Engineer. She holds a Bachelor

of Science Degree in Packaging from Michigan State University and a Master of Science Degree in Business from Wright State University. Ms. Buckey started in the Container Design Branch working on the Combat Talon II project. She saved the Air Force16 million dollars by designing three containers which also could be used as pieces of support equipment. The Combat Talon II Ku-Band Antenna Container Design won a Gold Star in the Military Category at Pack Expo in 1990. Ms. Buckey

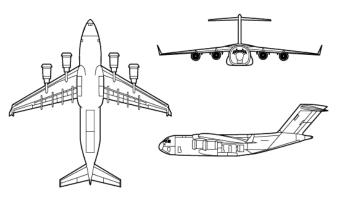
transferred to the Materials/Testing Branch in 1990 to broaden her career in test evaluation. She worked on numerous container test projects including testing the NASA Hubble Telescope Container. She also worked on cushioning research projects and updated MIL-HDBK-304, Package Cushioning Design. She reduced the size of the document from 500 pages to

100 pages and digitized the curves so they could be accessed from the AFPTEF Home Page. Ms Buckey received the status of Military Packaging Professional in 1993. Ms. Buckey is a trained facilitator and has facilitated many quality meetings and has led many quality efforts. In 1997, Ms. Buckey transferred back to the Container Design Branch to assist in container design. She is currently Project Manager/Engineer on the modification of the C-17 Loadmaster-

Observer Seat for the C-17 Program Office and a multi-purpose container for the Army. Ms. Buckey strives to fulfill her customer's needs in a timely fashion

AFPTEF AFPTEF





B-52 ALQ-172 LRU CONTAINERS By Robbin L. Miller

The Air Force Packaging Technology and Engineering Facility (AFPTEF) completed the B-52 line replaceable units (LRU's) engineered container designs in April of 1998. We were able to package all eight assets into two different container designs with four different cradle/shock systems. LRU's 1, 2, 4, and 10 share one container and cradle design. LRU's 8 and 12, due to their unique shape, share the same container design as 1, 2, 4, and 10 but require different cradle/shock systems. LRU's 3 and 7 share one container and cradle design. The containers passed all qualification tests and a field test as well.

The program office provided AFPTEF funds to perform a first production buy of 214 containers. The contract was awarded on 30 September 1998 just three months after the procurement process began. First article testing was successfully performed and final delivery was completed in June of 1999. AFPTEF was able to complete the entire design process and deliver the first production buy in just eighteen months.



AFPTEF

ENGINEERING AND FABRICATION SUPPORT FOR LOCAL BASE CUSTOMERS By Robbin L. Miller

AFPTEF continued to provide engineering, consultation, testing, and model shop support to local Wright-Patterson organizations. Support to NAIC includes the modeling and fabrication, using our Pro-Engineering solids modeling and manufacturing capabilities, of many different hand tools and fixtures, lift beam systems, and repair to existing handling fixtures. We also provided support to Wright Labs Battery Shop by fabricating attachment plates for transporting their batteries.

Consultation support in the form of container test plan review was performed for ASC/FBL, the Precision Attack Development Office. The program office requested assistance in obtaining a suitable container for their LITENING II POD.

With the ever dwindling budget and time constraints, AFPTEF provided an economical solution for our local customers.

AFPTEF

MODIFICATION OF THE T-703 ENGINE CONTIANER By Robbin L. Miller

The United States Army Aviation and Missile Command (AMCOM) is procuring a new model of the T-703 engine to be used on the OH-58D Kiowa Warrior aircraft. The current container used for the older engine is capable of containing the new model with the exception of a ¾" top clearance between the new engine and the container cover. We assisted the program office in a study to see if it was more economical to buy new containers or modify existing containers. The study revealed that it was more economical to modify and refurbish existing containers. The program office asked for AFPTEF's assistance in modifying (increase the cover height by three inches) and testing one container.

AFPTEF will modify the container by removing the top sheet, welding a three-inch stock aluminum

rectangle to the extrusion wall and then weld a new top sheet back into place. We will then perform leak/pressure testing and stacking tests to verify that the container still meets the environmental sealing and structural integrity requirement.

After modification and testing AFPTEF will modify the container drawing package to reflect the new height change and provide a modification instruction package for field modification of all T-703 containers. The project was completed in May 1999.

AFPTEF AFPTEF

AIR SHOW DISPLAY CRATES By Robbin L. Miller

AFSAC/IPC asked AFPTEF to design and fabricate 6 crates of various sizes and designs to transport equipment for the DOD Technology Booth used in international air shows. AFPTEF has designed five aluminum crates, approximately 60" in cube, and one smaller container (44" X 28" X 18") for a glass display unit. The structural integrity, environmental sealing capability and user friendliness of the aluminum crates will enhance program capability. The long life cycle of the aluminum crates will also reduce program costs by eliminating the requirement of replacing and/or rebuilding the wood crates every few trips. AFPTEF completed the project in April 1999.

AFPTEF

PROFILE OF ROBBIN MILLER

Ms. Robbin Miller has over ten years of experience here at AFPTEF. Robbin has a Bachelors degree in

Systems Engineering. Ms. Miller is personally responsible for the design and development of fifteen different containers over the years in support of programs for the Air Force, NASA, and the Army. These AFPTEF container designs allowed the government a cost avoidance of approximately 2.4 million dollars. Robbin managed a research and development project for new gasket shapes and materials in support of a Tri-Service project. Ms. Miller represents AFPTEF in DOD and industry standardization groups

such as the American Society of Mechanical Engineers, the Air Force Engineering Data Group, the Tri-Service Container Design Working Group, and the Society of Automotive Engineers. Due to Ms. Miller's experience in private industry in management, cost control, schedule control and public relations, she was appointed Marketing Manager in 1993. As marketing

manager Robbin developed and standardized all project proposals, costs for services, and time frames

required for completing specific project tasks. Ms. Miller has prepared approximately forty proposals for new projects of all kind in which twenty-two became AFPTEF projects. The new projects brought approximately 3.2 million dollars into AFPTEF. Ms Miller took the lead in 1994 in the research and procurement of our solids modeling systems used in the design, manufacturing, and analysis of our shipping and storage containers. The engineering workstations use Pro-Engineer,

solids modeling software that enhances our capabilities tremendously compared to the previously used ACAD software on PC's. Ms. Miller became the senior engineer in the design branch in 1996, responsible for all major acquisitions, CAD management, and manufacturing controls, in addition to program management.



MODEL MAKERS



The very diverse fabrication facility is responsible for all prototyping, modification and manufacturing of containers, special tooling, test equipment, simulated test loads and supporting test procedures. Their wisdom of detail in a variety of mission-critical container projects has produced containers dissimilar in size from a 1' by 1' aluminum extruded container to an 18' by 14' aluminum extruded container. The model makers have excelled in their precision and quality beginning with design to fabrication as a substantial standard of perfection by exceeding customer and program stringent deadlines and adherence to critical design requirements.

The model makers have established precedence for the prospective way the Air Force performs its transportation container design prototypes and manufacturing. The personal interaction with customers, engineers and management has maintained the essential comprehension to surpass customer goals. Maintaining state-of-the-art machinery, shop supplies and the model maker's combined 30 years of various fabrication techniques at AFPTEF has brought about enormous monetary savings.

This year they were responsible for fabrication and modification of:

- NASA LITHIUM BATTERY CONTAINER **FABRICATION**
- COMBAT TALON II KU-BANDCONTAINER WHEEL MODIFICATION
- APO-175 KA-BAND CONTAINER WHEEL MODIFICATION
- B-52 ALQ-172 LRU CONTAINER 1, 2, 3 & 4 PROTOTYPE FABRICATION AND TEST SUPPORT
- NAIC SPECIALIZED TOOL FABRICATION
- C-17 AIRCRAFT SEAT MODIFICATION
- NATICK CONTAINER PROTOTYPE FABRICATION AND TEST SUPPORT



MODEL MAKER PROFILE DONALD E. VANCE

Don has 27 years of experience with the government. The last 17 years he has been with the fabrication shop at AFPTEF. His years of private and government

competence in woodworking, welding, hand tool operation, Computer Numerical Control machining, sheetmetal and testing has elevated the tremendous prototyping and fabrication capabilities for the

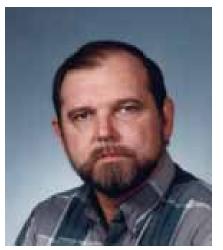


Air Force. Don is our focal point on fabrication techniques, procurement of state-of-the-art machinery, hand tools and supplies. Don is also involved in design teams to support a standard of excellence. Don's responsibility as Vehicle Control Officer manages the vehicle maintenance and driving records and has won many Top Fleet Awards. Don manages facility maintenance and contracts as Building Manager, maintains inventory of organizational property and property disposition as Real Property Building Manger, and is AFPTEF Safety and Fire Manager. Don provides leadership and instructs our auxiliary manpower provided by the Reserve Unit on base and tutors students who participate in the Student Employment Encourages Kids (SEEK) summer program. Don illuminates his technical information by participating in courses such as Tactical Planning and Team Building courses, Total Quality Management courses, Computer courses, Hazards Materials courses, and other technical courses.

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MODEL MAKER PROFILE LARRY H. HATTER

Larry has 19 years of experience with the government. The last 13 years Larry has been with the fabrication shop at AFPTEF. Larry's 15 years in sheetmetal



manufacturing and welding experience in private industry has made him our focal point on welding techniques with his certification in Tungsten Arc Welding and Shielded Gas Metal Welding. His years of experience in

Computer Numerical Control machining, woodworking, welding, hand tool operation, fixturing, simulated load fabrication, and container fabrication has maintained tremendous prototyping and fabrication capabilities to the Air Force. Larry maintains vehicle maintenance and driving records as alternate Vehicle Control Officer and is AFPTEF alternate Safety and Fire Manager. Larry improves his technical knowledge by participating in courses such as Computer courses, Total Quality Management courses, Hazards Materials courses and Tactical Planning and Team Building courses. Along with other technical courses, he is part of the design and test team.

ROME LABS MINIATURE TRANSPORTATION RECORDER SBIR CONTRACT PARTICIPATION By Larry Wood

Rome labs awarded a SIBR contract to Event Tracking Service (ETS) of Minneapolis MN for the development of a miniature transportation recorder. ETS has been working on this with ROME and AFPTEF for about 2 years. At the time of contract award ETS had very limited knowledge of either the packaging test environment or the potential market. AFPTEF participation in these areas was an essential element to the success of this contract

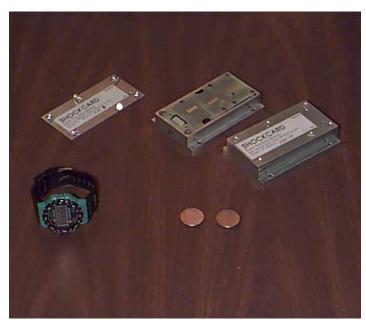
Mr Wood of AFPTEF traveled TDY in May of this year to the AF Rome Lab at Rome NY (now Griffis Industrial Park, formerly Griffis AFB) to attend a meeting with a the ETS representative, Dr. Graham Cameron, who was supposed to present Rome with several new miniature shock recorders. The meeting occurred, but the hardware was not delivered at that time. Dr. Cameron expressed a need for more time to work out minor electronic issues. A subsequent delivery occurred and they are under both Rome and AFPTEF evaluation for functional use.

The devices are a self contained, single axis recorder for shock pulses and temperature capable of operating for about 30 days on two button cell (calculator size) batteries (See batteries shown in photo at right). Data readout is accomplished by the use of a simple PC computer program that will run on any version of Microsoft Windows, using any computer that has

either COM1 or COM2 ports otherwise unused. The price was forecasted to be in the \$1,200 range and very little competition exists in this price range, so preliminary evaluation shows much promise exists for ETS to market these commercially.

AFMC LSO/LOPM, Mr Larry A. Wood DSN 787-4519, COMM 937-257-4519, FAX 937-656-1350

Internet E-Mail: larry.wood@wpafb.af.mil



Two SHOCKCARD devices shown, one with cover removed to display communication port. Wristwatch is shown to provide a visual size comparison.



NIPHLE SYMPOSIUM PRESENTATION By Larry Wood

The semi-annual NIPHLE Symposiums are the only packaging meetings of their type where government and industry representatives get together to share information on subjects of mutual interest.

NIPHLE Symposium, 3-7 May, RI was attended by AFPTEF employee Mr. Larry Wood, who presented a briefing on the use of a laser measuring device to calculate cushion drop compression. Since this is a very new idea and not currently in use anywhere else in the cushion material industry, there was a very high level of interest. (See additional article on this item

POC Dave Filsinger). Many of the commercial foam manufacturers expressed a desire to visit AFPTEF and witness the use of the laser

The new government cushion material CIDs A-A-59135 and A-A-59136 issued to replace PPP-C-1752 (Cancelled) were also discussed. The overall impression was one of concern that the new CIDs may need improvement. The final result (Reached by an industry-only meeting) was that the cushioning manufacturers are going to attempt to write a completely commercial document independent of government directives. The various material representatives expressed an unprecedented level of cooperation on this and promised to include government input into the document development process. This is the course of action recommended by the government MSSR process, and may proceed to the level of the industry becoming a self-regulating group.

AFMC LSO/LOPM, Mr Larry A. Wood DSN 787-4519, COMM 937-257-4519, FAX 937-656-1350 Internet E-Mail: larry.wood@wpafb.af.mil

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STANDARDIZATION WORLD UPDATE By Larry Wood

The Military Standardization and Simplification Reform Group (MSSR) which is comprised of DOD Standardization Representatives has spearheaded a movement to reduce, and in the case of the AF, to eliminate Detail Specifications. Many of these Detail Specifications were either canceled, transformed into performance specifications, transferred to DLA, or converted to Industry Standards.

AFPTEF has been known as "Code 69" for the purpose of Military Specifications and Standards. This year we transferred all of the documents from Code 69 to Code 11 and will be deestablishing Code

69. This is a seamless transfer and the document users will not be affected, in fact, AFPTEF will remain the Responsible Engineering Organization for the old Code 69 documents and be assisting Code 11 with future revisions. This change to the standardization management of Air Force documents will streamline the specifications and standard revision process and fully support the long-term goals of the Air Force standardization management offices.

Where Industry standards are concerned, the AFPTEF contacts are Robbin Miller, Society of Automotive Engineers (SAE) and Caroline Buckey, ASTM. These two representatives have been active in converting documents to their respective societies for continued use by the packaging field.

Below is a listing of the documents transferred to Code 11 in the past year:		A-A-59136 SAE AS5017	CUSHIONING MATERIAL, PACKAGING, CLOSED CELL FOAM PLANK AIR FILLING VALVES
MIL-HDBK-304 PPP-B-587 PPP-C-850 PPP-C-1120	PACKAGE CUSHIONING DESIGN BOX, WOOD, WIREBOUND PALLET TYPE CUSHIONING, POLYSTYRENE CUSHIONING MATERIAL,	SAE AS 5135 SAE ARP 1967	DESICCANT PORT AND DESICCANT HOLDER CONTAINERS, SHIPPING AND STORAGE, AIRCRAFT ENGINES AND MODULES - METAL, REUSABLE
PPP-B-1672 MIL-C-9897	UNCOMPRESSED BOUND FIBER BOXES, REUSABLE, SHIPPING WITH CUSHIONING CRATES, SLOTTED ANGLE, STEEL OR	Points of Conta	act: Mr. Larry Wood, AFMC LSO/ LOPM, DSN 787-4519 or
MIL-B-26195	ALUMINUM BOXES, WOOD-CLEATED, SKIDDED, LOAD-BEARING BASE		COMM 937-257-4519 Ms. Robbin Miller, AFMC LSO/ LOPD, DSN 787-3362 or
MIL-PRF-26514	POLYURETHANE FOAM, RIGID OR FLEXIBLE, FOR PACK AGING		COMM 937-257-3362 Ms. Caroline Buckey, AFMC
MIL-V-27166	VALVE, PRESSURE EQUALIZING, GASEOUS PRODUCTS		LSO/LOPD, DSN 787-8434 or COMM 937-257-8434
MIL-I-26860	INDICATOR, HUMIDITY, PLUG, COLOR CHANGE		
MIL-PRF-83671	FOAM-IN-PLACE PACKAGING MATERIALS, GENERAL SPECIFICATION	Internet E-Mail Internet E-Mail	J
A-A-58078	PLASTIC BOARD (FOR PACKAGING APPLICATIONS)	Internet E-Mail	l: caroline.buckey@wpafb.af.mil
A-A-59135	PACKAGING MATERIAL. SHEET		

LARRY A. WOOD AFMC LSO/LOPM

Mr. Wood has over 20 years military and industry experience in engineering and transportation. With nine as an engineering supervisor lab manager. Mr. Wood is responsible for testing and subsequent approval or rejection of packaging products delivered under government contract. He reviews and approves military standards for procurement control of packaging materials/processes and is a signature authority for CFR 49 Hazardous Material Transportation Packaging Testing. Managing an annual branch budget of \$ 500,000 and special equipment purchases totaling \$ 2m is a particular challenge.

Mr. Wood graduated from Western MichiganUniversity in 1974 with a BS in Mechanical Engineering. He also completed the DoD School of Military Packaging Technology and received the designation of "Military Packaging

Professional". In May 1997, the National Institute of Packaging Handling and Logistics Engineers (NIPHLE) awarded Mr. Wood its highest honor, the John C. Wilford award for outstanding lifetime achievement. Mr. Wood is certified to level III as an engineering acquisition professional in accordance with the DoD polices of contracting.

During his tenure as supervisor, he has managed the refitting of the Packaging Lab and converted it from a '1950s' era facility to a modern, computer-controlled lab, with engineering workstation controls. The review and writing of Statements of Work and associated contracting processes including delivery and post contract problem resolution have been his responsibility for over 9 years.

With over 10 years in private industry, his personal experience with engineering, procurement and people associated with Department of Defense politics provides AFPTEF with a unique set of skills that have greatly enhanced our operations.

AFPTEF AFPTER

DLA PERFORMANCE ORIENTED PACKAGING (POP) TESTING By Susan Misra

The Air Force Packaging Technology and Engineering Facility (AFPTEF) is starting its second year of Performance Oriented Packaging (POP) testing of fiberboard and metal drum combination packages of various sizes and configurations, for the DLA Operations Support Office. We are testing Groups I, II, and III packages for surface modes, only. The testing consists of the drop test, one-hour repetitive shock test, stack test, and Cobb test. Information from this testing will be placed in DLA's "PC POP" computer program on the World Wide Web for use by the DoD hazardous-packaging community.

AFMC LSO/LOPM, Ms. Susan J. Misra DSN 787-8061, FAX 986-1350; COMM 937-257-8061, FAX 937-656-1350 Internet E-Mail: susan.misra@wpafb.af.mil



Typical POP test supplies. Shown is a 4 Gallon MS Drum, vermiculite absorbent, and 4 One-Quart Plastic bottles.

SMALL BUSINESS INNOVATION RESEARCH (SBIR) TOPIC By Susan Evans

AFPTEF's Small Business Innovative Research project began in May 1998, with Materials Engineering and Technical Support Services, Ltd., of Columbus, Ohio the Phase II contractor. The goal of this SBIR topic, Adhesive-Sealable Barrier Material, is to identify an easily sealed, recyclable barrier material that approaches or meets the requirements of MIL-B-131 and MIL-B-117. Although this material is not intended as a replacement for MIL-B-131, it would be an equivalent option, either in bulk or pre-made bags, for field users of MIL-B-131 who often experience trouble obtaining heat-sealers and the electricity to operate them. This material would also be sealable even when the presence of dirt might prevent a heat-seal from being made. Bags of this material would also be (ideally) resealable, reusable, more obviously recyclable, and therefore, more environmentally friendly. The end products must have commercial potential. Commercialization of these products will take place in Phase III.

The program status to date includes:

- full testing and qualification of existing MIL-Spec materials to provide baseline data for candidate laminate materials
- design of mechanical closure mechanism
- fabrication of closure mechanism prototype

Other Phase II end products should include the test results for sealed barrier bags using a proposed material and sealing method, and the results of field testing at selected DOD warehouses and field activities. These results should be available by March 2000.

AFMC LSO/LOPM, Ms. Susan Evans DSN 787-7445, COMM 937-257-7445, FAX 937-656-1350 Internet E-Mail: susan.evans@wpafb.af.mil

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"One test is worth a thousand expert opinions".



LASER TEST EQUIPMENT MEASUREMENT DEVICE By David Filsinger

Through the use of cushion testers, a considerable amount of data has been collected over the years on the cushioning characteristics of packaging materials. Because of the creep displayed in these materials, it



was difficult to
measure the precise
thickness of the test
samples at the
moment of impact.
Without this
measurement,
double integration
of the impact
deceleration curve
could not yield the
amount of
compression the
cushion was
subjected to during

impact. AFPTEF purchased a class IIIa laser to directly study the dynamic compression characteristics of these materials during impact testing. The laser was set up as shown in the photo with the laser on the tester seismic mass and a target mounted to the tester platen. This configuration permits precise measurement of approximately the last five inches of platen position relative to the impact tester base. Because of limitations in the laser electronics, platen motion was limited to a maximum velocity of about 130 to 140 inches per second. This speed equates to a drop height of approximately two feet.

AFMC LSO/LOPM, Mr. David Filsinger, DSN 787-6971, COMM 937-257-6971, FAX 937-656-1350

Internet E-Mail: <u>david.filsinger@wpafb.af.mil</u>

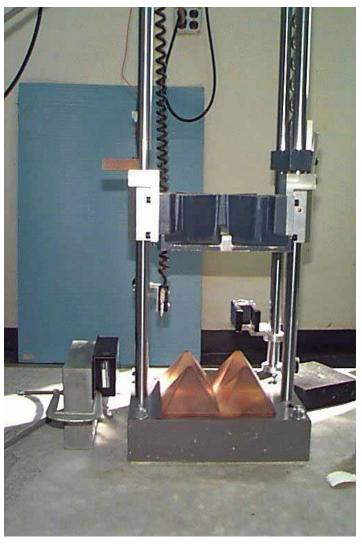


Photo of AFPTEF cushion tester with laser (black box) mounted on the left-hand side.

PACKAGING POLICY by Michael Werneke

I know the packaging community has always worked and supported any initiative that improves military packaging. In the upcoming year, we will continue to see new packaging single process initiatives being submitted from industry. As a community, we must continue to aggressively work packaging single process initiatives. It will require constant attention to ensure these initiatives meet our military packaging requirements. However, we must continue to ensure DoD assets are always provided the preservation and packing required necessary to reach the war fighter in a usable condition at the least cost. This is and has always been the bottom line for the packaging specialist. We must continue to identify and justify as necessary the need for military packing and preservation requirements in accordance with MIL-STD-2073-1C.

The packaging policy office is committed to providing the support you need to accomplish this task. Our office continues to improve communications by improving our hazardous materials and packaging bulletin boards, our information letter "PackYack," and the special packaging development and distribution system. This year our office also developed a Web enabled packaging problem reporting system called "PackProbe." PackProbe will enable the packaging community to electronically collect valuable metrics on packaging.

However, you are the key to continuing to improve the packaging process. As the packaging specialist in the field, you are the first to identify problems with the process or see ways of improving the process. Only through your feedback and ideas can we truly improve the Air Force packaging process.

Our office can provide expertise on packaging policy, hazardous materials policy, packaging data systems, and packaging and hazardous materials training requirements. You can continue to find valuable information at our two web sites: http://www.afmc.wpafb.af.mil/hazmat and http://packweb.wpafb.af.mil. Please, contact anyone in our office if you have any questions or comments. Michael D. Werneke, Chief, Packaging Policy Office

LITHIUM BATTERY SHIPMENT FROM FRANCE By Michael Werneke

The Air Force Packaging Policy Office (AFMC LSO/LOPP) provided Hazardous Materials packaging and transportation technical support for the movement of 7 containers with 250AH lithium batteries or battery cells from Poitiers, France to Crane, IN. Also, one back-up shipping system was prepared and shipped.





Without a Transportation Management Office at Poitiers, France, each shipping container required inspection and preparation for military airlift by LOPP. Each battery or no more than three cells were shipped inside an 85 gallon steel drum which was UN certified for shipment of hazardous materials.

After preparation of the containers, each shipping container and its cushioning system was placed in a freezer truck at -18 degrees C for at least 8 hours. The next step was to place the battery or cells inside a Lexan/Aluminum handling fixture designed by the





Aerospace Corporation and manufactured by the Air Force Packaging Technology and Engineering Facility. The Lexan/Aluminum handling fixtures with lithium batteries or cells were also placed in a freezer truck at –18 degrees C for at least 8 hours. The final step was to pack, close, and band the shipping container to a pallet while inside the freezer truck. By keeping the battery at this temperature, the lithium inside the battery or cells was kept inert, which maintained the battery or cells in an unused condition.

The lithium batteries and cells were then moved to Poitiers national airport by freezer truck where they were loaded onto a C-17 and transported to Wright-Patterson AFB, OH. After arrival at Wright-Patterson AFB the batteries and cells were transferred to a freezer truck and transported to Crane Naval Surface Warfare Center, IN.

This shipment completed the number of batteries that SAFT of France was contracted to produce. The lithium batteries will be stored in a freezer at Crane, IN until needed to support the Air Force Space and Missile Center Titan IV launch program.

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PROFILE OF MIKE WERNEKE

Mike Werneke, Chief of the Packaging Policy Branch since 1993, has a history of Air Force Service in active duty and civilian capacities. From 1972 – 1982, he served the Air Force active duty as an Air Cargo Specialist. When he left active duty, he spent a year in a management position for a commercial firm before joining Sheppard AFB, TX as an instructor. During his three years at Sheppard he instructed the Air Cargo Specialist training course, the Hazardous Materials training course, and the Aircraft Loadmaster training course. He came to Wright-Patterson AFB in 1987 as a Packaging Specialist. In 1990 Mr. Werneke was promoted to Lead Hazardous Material Specialist for the Air Force. Knowledge he gained during his career with the Air Force has prepared him for the policy decisions he makes today affecting the packaging and transportation of cargo and Hazardous Goods throughout the Air Force and DoD.



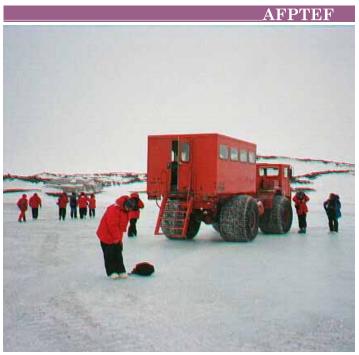
OPERATION DEEP FREEZE ANTARCTICA By Duane Pfund



The National
Science Foundation
(NSF) funds and
administers
environmental,
astrological, and
geophysical
research within the
continent of
Antarctica for the
United States
Antarctic Program
(USAP). They
contract with

numerous commercial contractors and government agencies to perform functions in support of this effort. The primary contractor is Antarctic Support Associates (ASA). The Air Force provides military cargo and passenger air support from Christchurch NZ to McMurdo Station Antarctica as well as providing intracontinent airlift via ski-equipped LC-130s. The 109th Air Wing NYANG operates the LC-130s under the command of Det. 13, Air National Guard. Starting in 1998-99 season. Det. 13 ANG assumed responsibility as the military command unit for USAP replacing the longstanding Naval Support Force Antarctica. With this transfer ASA requested an AFMC LSO/LOP technical support visit to provide guidance on the safe movement of hazardous materials and become oriented to the unique environmental and logistical challenges posed by operating on the highest, coldest, driest continent on Earth. Operations range from a fully capable permanent station at McMurdo Sound on the Antarctic coast to remote deep field locations at the South Pole and other outlying areas where materials, personnel, and the environment pose extreme limitations. Some of the unique hazardous material issues include shipping bulk propane and liquid fuel, bulk liquid helium to super-cool telescope equipment, deep field scientist deployment and redeployment, and wet-cell batteries. Most of the fuel requirement is brought into McMurdo Station by Military Sealift

Command vessel during the austral summer after a Coast Guard Cutter paves the way through sea ice. From there, the only mode of transport possible is LC-130 aircraft requiring use of modified DOT-51 propane tanks and MIL-D-23119 fuel bladders to sustain life at the inland remote camps. The bulk liquid helium tank is necessary to bring the large required amount of liquid helium to the South Pole to support research equipment. An interesting problem posed in this environment is the affect of cold temperatures on wet-cell batteries. The extreme cold reduces battery effectiveness and life, as well as causing many to crack, break, or otherwise become damaged. To ship bulk quantities of batteries to remote locations, a pallet size polyethylene container configuration was designed for new batteries and procedures were developed to safely and effectively ship damaged batteries back to McMurdo Station for vessel movement to the hazardous waste disposal location in the U.S. The trip served as a win-win situation promoting cooperation between the DoD, NSF, and the commercial contractor ASA to safely transport hazardous materials necessary to accomplish a congressionally mandated scientific research mission.



$\overline{AFPTE}F$

AIR FORCE HAZARDOUS MATERIAL TRAINING INTEGRATED PRODUCT TEAM (HMT-IPT) 22-26 JUNE 1998

By Duane Pfund

During the 1998 Enlisted Transportation Advisory Group (ETAG) meeting, the Air Transportation functional workshop expressed a concern with current hazardous material (HAZMAT) training. Specifically, participants implied that the L2AZR/L4AZT2T000-005, Hazardous Materials Preparer Course (Initial) and L6AZS2T000-000, Hazardous Materials Inspector Course (Initial) do not provide the fundamental instructions necessary to prepare transportation specialists to properly accomplish critical core mission processes. Both courses primarily focus on completing administrative documentation tasks vice the physical preparation and inspection of cargo. Recent mishaps involving the lack of proper preparation and inspection of hazardous material highlighted an urgent need to review all training and operational procedures. The workshop recommended establishment of an IPT to immediately assess these areas of concern. Based on this recommendation, HO USAF/ILT charted a MAJCOM working group to accomplish a complete process review of the HAZMAT shipping process. AFMC LSO/LOPP was designed as the lead to host the meeting. The charter was designed to accomplish three objectives: Objective one: Develop a baseline of the HAZMAT shipping process. Beginning with day-to-day TMO and aerial port operations, following through with mobility requirements, and finishing with training processes.

Objective two: Provide suggestions to improve the HAZMAT shipping process. Using the baseline processes identified in Objective one, evaluate areas to increase the effectiveness of the process or reduce the potential for a HAZMAT shipping incident. Objective three: Assess all HAZMAT training curriculum to ensure field requirements are met. Concentrate on the type of information and methods of instruction for the Preparer and Inspector training. Goals: (1) Provide valid and defensible recommendations to HQ USAF to improve the HAZMAT shipping process, and to improve the adequacy and effectiveness of HAZMAT Preparer and Inspector training. (2) Design processes (including training) that minimize hazard risk and enhance zero incident potential.

The HMT-IPT systematically worked through three well-defined objectives to obtain their goal of recommending improvements that will positively affect safety of the HAZMAT shipping process. The final fourteen recommendations range from clarifications that will ease the processing of cargo, to physical changes in personnel and capabilities. Recommendations in Preparer and Inspector training will provide a greatly enhanced knowledge base for operations both near term and in the future. To view minutes from the meeting and progress updates on the recommendations, assess the HQ USAF/ILT web site: www.il.hq.af.mil/ilt/iltt/.

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AIR FORCE HAZARDOUS MATERIAL TECHNICAL SPECIALIST INSTRUCTIONAL GUIDANCE By Duane Pfund

During the November 1997 Combined Air Transportation and Traffic Management Utilization and Training Workshop, the MAJCOM representatives identified a problem with nonstandard training procedures. Significant concern was directed toward the Air Force technical specialist training provision. This provision is a MAJCOM managed, local training method provided by base transportation to nontransportation personnel that require HAZMAT Preparer level (certification) training. It is designed to train these individuals on the specific items they are tasked to certify for shipment thereby providing more adequate and efficient training. The group decided to develop an AF standard training platform to be used by each MAJCOM and base tailoring a local program. The program emphasizes a two-phase approach. Phase One reflects a task qualification standard for packaging and preparation of specific items the technical specialist is tasked to certify, and Phase Two covers a standardized lesson plan for AFJMAN 24-204 and documentation. The new instruction guidance includes suggestions for establishing a program, how to instruct students, and testing guidelines. It further provides a basic student study guide and three commodity specific guides for general hazardous materials, explosives, and vehicles/ equipment. Examples of task qualification checklists are part of the package to assist documenting Phase One competency. The material eases MAJCOM and base course development workload as well as providing an AF training standard. It is now an AF directed program that may be accessed at: www.afmc.wpafb.af.mil/hazmat/.

HAZARDOUS MATERIAL TECHNICAL SPECIALIST Instructional Guidance



OFFICE AUTOMATION (OA) AND COMPUTER SYSTEMS by Darryl K. Meade

Intranets have been widely adopted as a cost-effective way to distribute information throughout the enterprise. Web servers and e-mail are becoming standard ways of accessing information and networked applications. Corporations are now looking to reap the benefits of leveraging Intranet systems with their partners and customers.

These extended Intranets have been dubbed "Extranets." The Extranet revolution is all about using computers and the Internet to build a cohesive information infrastructure, which link businesses together for moving information all over the planet. The ready availability of low-cost Web browsers and servers for nearly every CPU and operating system makes it practical to build attractive, graphically-based, cross-platform applications in a manner unthought of just a few years ago.

Extranets allow companies to increase their competitiveness by securely using the Internet and open Intranet standards to work more closely with customers, create new revenue streams and service opportunities, decrease turnaround times, reduce costs and work better with partners and suppliers. Extranets are creating a wealth of new opportunities for gaining competitive advantages.

The economics of business competition are forcing industries to optimize along supply-chain lines. Business process optimization inside a single company is no longer enough to sustain competitive advantages in the ruthless global economy. Businesses must use electronic technology to integrate and optimize processes with suppliers, customers, shippers, design partners, warehouses, remote offices, etc. These optimizations must include data sharing and application blending between companies.

Certainly the Internet's open protocols and applications have proven to be universally useful over a mixture of enterprise-wide networks, server

platforms and workstations. We've all seen organizations trying to integrate their diverse collection of computing resources. We also know that this can be quite a challenging task for most organizations. On the server side, there is a significant investment in legacy systems and many flavors of Unix and NT solutions. For the client workstations, you have windows and Mac advocates each pushing for their workstation.



While Extranets are based on open Internet standards such as HTTP, TCP/IP, FTP, SMTP, HTML, MIME, X.500, X.509, SSL, etc., and leverage much of the technology used in Intranet environments, they can be difficult to design and implement. This is due to the complexities of security, performance, management and policy that are encountered when bridging the information systems of two or more organizations together. Security and management policies can have as much to say about the success of an Extranet deployment as the technology that is used. By and large, this common technology base allows products from various companies to interact and interoperate. Extranet applications must be designed to operate in a complex environment that may include technology

from multiple vendors:

- web browsers and servers
- secure file transfer servers
- customer account management systems
- remote administration tools
- directory servers
- authentication systems
- commerce systems
- distributed computing infrastructures and databases
- messaging systems
- firewalls and proxies
- security scanners

Extranet implementers are constantly reminded that there can be a great multiformity in the types of solutions and, more importantly, the security and management policies in place at various organizations. Particular care must be taken when designing and implementing an Extranet system, as you are making sensitive corporate information and systems available to outside companies. Security is particularly important in such an environment, as you must ensure that internal corporate systems remain protected, and that partner companies can only access specified and approved resources through the Extranet. Approval, tracking, and auditing are all challenging in this environment.

Extranet technology can provide a distinct competitive advantage to corporations around the world. The Intranet and Extranet world will lead to a more flexible future that will enable people to put the building blocks together in a way that's meaningful to communications infrastructure.

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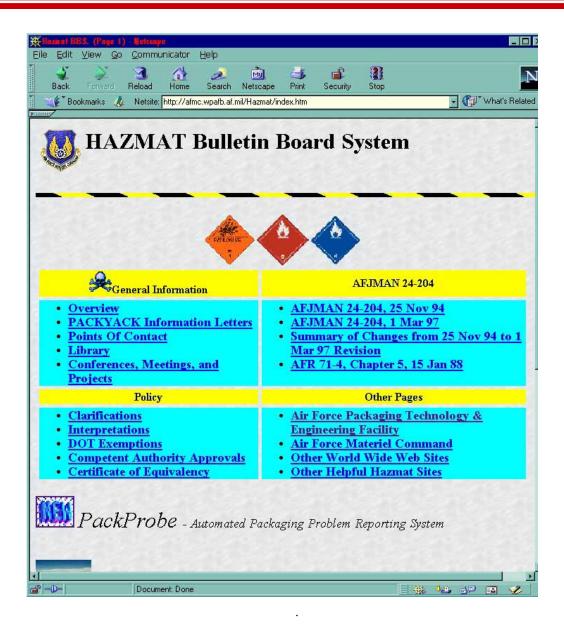
HAZARDOUS MATERIALS BULLETIN BOARD SYSTEM by Darryl K. Meade

Major changes are coming to our web site, including a new design. Sites need to change to keep things fresh, and to keep regular visitors attentive. Many of the sites out there were designed for version 1.0 or 2.0 browsers. Our goal is to provide our customers with the most up to date web functionality in order to maximize visibility and captivation using cutting-edge technology.

A successful website must be designed before the bits and bytes can be set loose by any web developer. The new site will be designed to focus on the customer first, with graphically-based content segmented on customer orientation rather than just text layout itself. Focusing on the customer at Field, Wing and MAJCOM-level and their informational needs first is what segmented communication is all about. We plan on taking this marketing concept and integrating it in our web site. We believe that while the top-level HazmatBBS pages are still in good order, we must continually reinvent ourselves to use emerging technology to find ways to run better and leaner. A "facelift" wouldn't hurt. We need to revisit categories - do they still make sense? Will moving to a twocolumn frames layout help? Do we want an archive or a dynamic window on Packaging Policy? What is the function of the site? Look for ways to do less pointing and clicking.

A captivating website is one that provides meaningful content, not just information. In addition, it must have these features:

- Simple to use, well organized
- Fast, loads quickly
- Interesting
- · In-depth info
- Up-to-date info
- Downloads
- News, announcements
- Any necessary software plug-ins



The Packaging Policy Team and AFMC CSO/SCST volunteered to be part of the redesign group. We will spend 6-8 weeks in web development. The main page of HazmatBBS will most likely be renamed Packaging Policy. Hazmat Policy will be a secondary category. Site redesign should be complete by mid-May.

Potential advantages and benefits: Reduce our present operational overhead by utilizing the Internet. Improve our customer service. Create a better image for our organization. Conduct metric analysis. Establish a new way for new & old customers to contact us.

The HazmatBBS is accessible 24 hours a day. Come check us out at: www.afmc.wpafb.af.mil/Hazmat

AFPTER



AIR FORCE REUSABLE CONTAINER PROGRAM by Darryl K. Meade

The Air Force Reusable Container Program is realizing savings in logistics costs. By taking maximum advantage of reusing and reclaiming the universally designed reusable containers, packaging



costs are reduced. This program is designed to pay minimum cost in packaging and maintaining high levels of protection for assets during storage or shipment. AFI 67-1 and AFI 24-202 outlines responsibilities and overall implementation guidelines for establishing and executing an effective Reusable Container Program. These instructions establish Air Force-wide reporting procedures and special holding accounts for reusable containers.

An essential advantage of reusable containers is versatility. Thousands of serviceable and repairable parts require special containers for shipment to repair activities. Containers must maintain a high rate of reuse due to the nature and value of these items and DoD's diverse logistical requirements. About 90% of the items assigned to fastpacks are either in the slide or star type pack. The remarkable versatility of fastpacks is evident when you have over 10,000 line items that can be packed in 4 sizes of slide packs. Consequently, new acquisitions of expensive containers are minimized, labor and materiel costs are reduced, and mission support is enhanced through the continuous flow of serviceable parts. The Reusable Container Program is an efficient and effective

program to satisfy the most demanding packaging requirements.

The benefits of reusable containers are apparent in mobility and sustainment operations. For example, F-15C maintenance personnel with the 27th Fighter Squadron at Langley Air Force Base, VA, pack up equipment and supplies preparing for their move to Prince Sultan Air Base, Saudi Arabia. U.S. and coalition forces in Dhahran are involved in Operation Desert Focus, the movement of aircraft and personnel to Prince Sultan Air Base, Saudi Arabia. These forces are flying in support of Operation Southern Watch, which enforces the United Nations-sanctioned no-fly zone below the 32nd parallel in Iraq.



With assigned reusable containers, you know exactly how much space or footprint you need for each pallet position and you can pre-plan accordingly. If you were using a variety of different containers, you would not know what sizes you needed. Reusable containers lend themselves to standardization shipping a consistent quantity in a consistent way. Standard container sizes allow full cube utilization of the container, pallet and aircraft fuselage. All of which leads to reduced transportation costs. Standardization ensures your advance load planning pays off. You know specifically what sizes of containers your parts will be packed in so you can execute load planning and pallet positioning in the most space effective and efficient manner possible. Assets are offered superior packaging protection and performance in the toughest conditions.

AFPTEF provides a central resource where people can tap our expertise for packaging engineering design, modification, testing and evaluation capabilities. Air Force personnel, in particular the reusable container monitors, are to be commended for their proactive efforts in this effective program. Their work saves Air Force funds and provides superior protection and performance of our spare parts — essential to accomplish mission objectives.

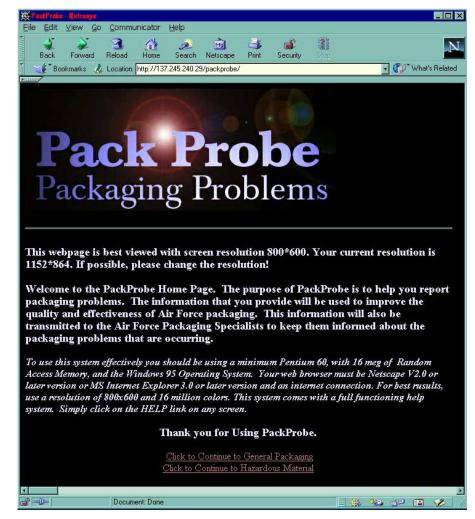
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PACKPROBE By Ms. Joan Walker Packaging Specialist

1998 was an exciting year in Packaging Policy. Most of my time was spent developing PackProbe and by the time this article is published in our annual report, PackProbe will be fully operational.

What is PackProbe, you ask?
PackProbe is a web-based process that permits field activities to report packaging problems via the Internet.
When problem reports are created anywhere in the world, they electronically flow to our Packaging Specialists so that they can be immediately aware of packaging problems. Copies of the reports are also transmitted to the Packaging Policy office so that we may evaluate trends in packaging problems, improve policy and procedures, and measure all improvements.

Customers of PackProbe will have many user-friendly options to explore such as accessing packaging problem reports that have already been submitted, viewing the status of problem reports in the system, identifying packaging points of contact, and providing feed-back to the system Program Manager. I will continue to provide articles about PackProbe in our newsletter, PACK YACK, to keep everyone informed of our progress and of system



enhancements. So, check out our web site for additional information: www.afmc.wpafb.af.mil/hazmat/package.

THE NATIONAL INSTITUTE OF PACKAGING, HANDLING & LOGISTICS ENGINEERS 1999 SOFTWARE DESIGN AWARD WINNERS by Joan Walker

Ms. Joan Walker and Mr. Duane Pfund, Packaging Policy, won the 1999 Software Design competition from the National Institute of Packaging, Handling and Logistics Engineers in a special ceremony in San Antonio, Texas. In addition to this prestigious award, they also were presented the Lapidus Trophy for "Best of Show" which means the total score for their nomination was rated the highest by the judges of all contestants in all four categories of competition.

The Lapidus Trophy, a rotating award given annually, is believed to be the first of its kind. It is named after Mr. Herbert M. Lapidus, who was the first civilian chairman of the Navy Packaging Board and a charter inductee to the Military Packaging Hall of Fame.

Mr. Lapidus, a retired U.S. Air Force colonel, is considered by many of his peers as one of the fathers of Military Packaging. His career efforts in packaging gave our military the

protected products they needed in critical war environments.



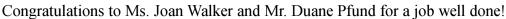
Ms. Joan Walker developed PackProbe, a web-based process, whereby any activity in the world can report general cargo packaging discrepancies via the Internet. The problem reports electronically flow to the Packaging Specialist in the field who has management responsibility for the assets described in the reports. This information will enable Packaging Policy to track trends in

packaging problems, improve packaging policy and procedures, and measure improvements to support metrics requirements.

Mr. Duane Pfund applied this same concept to the preparation of hazardous

material for military air shipment, and now the aerial ports can electronically communicate directly with all the major shippers. The data gathered in this process will be used to enhance the training of employees who prepare hazardous material for military air shipments.

PackProbe provides a global overview of analytical packaging data that has never before been available by any means. This process makes data collection, data retrieval, and trend analysis available without the burden of extensive training, expensive software procurement, or implementation.





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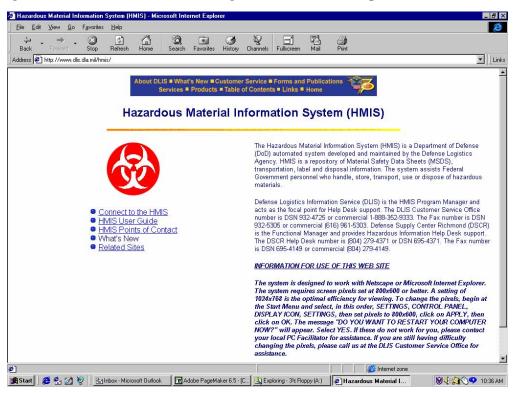
HAZARDOUS MATERIALS INFORMATION SYSTEM By Tonita Davis

The Hazardous Materials Information System (HMIS) is the central repository for information on hazardous materials. HMIS is an automated system containing Material Safety Data Sheets (MSDS) and item specific value-added data pertaining to transportation, logistics, disposal and OSHA compliant hazardous warning label.

The system assists Federal Government personnel who handle, store, transport, use or dispose of hazardous materials by providing the following information:

- MSDS provides a user with information on the identity of a product, the hazards associated with it, and the precautions needed to protect the individual and the environment. The system includes all the data fields required by the OSHA Hazard Communications Standard.
- Transportation provides the user with the proper shipping names, hazard class, identification numbers, and packing group associated with a hazardous item for shipment whether nationally or internationally by any mode of transportation.
- Warning Labels is in the format of the DOD Hazard Communication Warning Label.
- Disposal contains managerial data to assist primarily the Defense Reutilization and Marketing Service (DRMS) in the disposal of hazardous items.

DLA is in the final stages of transitioning HMIS from a flat file system to a system on the World Wide Web (WWW). Hopefully, HMIS will be on-line and operational to all users by the end of FY99. The website address for getting the latest information concerning HMIS on-line is http://www.dlis.dla.mil/hmis.

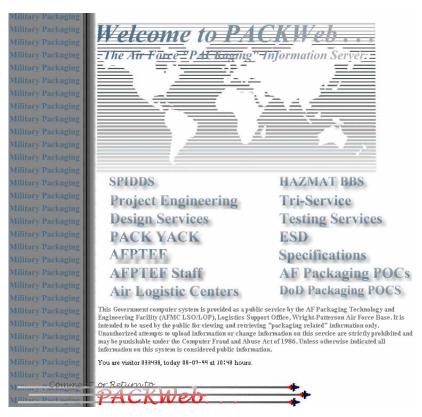


"PACKWEB"

"PACKWeb" was created to provide the Air Force a single search point for "AF packaging" related information. As shown to the right, PACKWeb serves information that relates to the Special Packaging Instructions, the packaging of Hazardous materials, AF Packaging points of contact, Engineering reports, and Tri-Service Coordination information which includes efforts from the Container Design Working Group, the Cost/Container Data Base and a Vendor Listing specific to container design. Additional packaging information is also available with pointers to the efforts from other Services.

The customer can click and review a world of packaging information at http://packweb.wpafb.af.mil

AFMC-LSO/LOPD, Carey Gravenstine, gravens@packweb.wpafb.af.mil, DSN 787-8236, DSN Fax 986-1350
Commercial 937-257-8236, Fax 937-656-1350



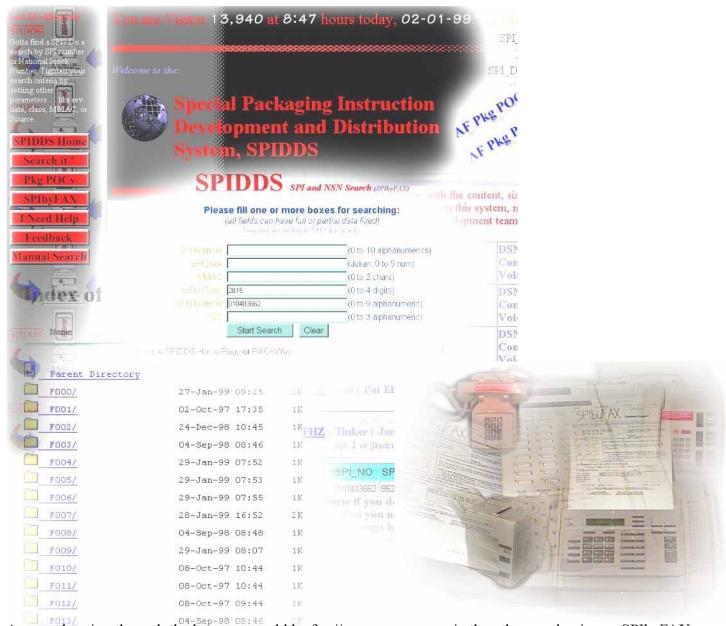
APPIER APPIER

AF SPECIAL PACKAGING INSTRUCTION DEVELOPMENT AND DISTRIBUTION SYSTEM (SPIDDS)

SPIDDS, started as an AF initiative and was designed to support the DoD customer. In 1990 the goal was simply to enhance an existing system so critical packaging information could be obtained by anyone, from anywhere and in a timely fashion. From "goal" to "reality", today the AF Packaging Technology and Engineering Facility provides integrated solutions of web, ftp and "fax on demand".

The AF SPI Team supports over 30,000 documents, constantly monitoring, updating and placing into production for distribution to "you the customer". SPIDDS focuses on three basic mechanisms that ensures everyone can indeed access AF SPIs easily any time, any day, from anywhere. Our customers can find a "SPIDDS" link at http://packweb.wpafb.af.mil where SPIs are conveniently formatted in MS Word.





A second option through the browser would be ftp://packweb.wpafb.af.mil/dist or using a basic file transfer process (FTP) to get the very same SPIs formatted in MS Word. For basic ftp connection a user id of "anonymous" and EM address for a "password" will allow access.

Even though most of our customers are getting on the net, we still support and address the "simplest approach". "SPIbyFAX" currently provides SPIs to over 500 customers. They dial using their touch tone phone, DSN 674-4620 or Commercial (937) 904-4620, key in the SPI or NSN and get a copy of the very same MS Word formatted SPI documents they

can access via the other mechanisms. SPIbyFAX takes up to 5 document requests at one time and converts them "on-the-fly" within seconds. The customers' fax machine does the rest!

(Ref. AFPTEF Annual Reports 1993 pg. 27, 1994 pg. 20-21, 1995 pg. 17, 1996 pg. 25, and 1997 pg. 32).

From the SPI Team: Thanks for your support.

AFMC-LSO/LOPD, Carey Gravenstine, gravens@packweb.wpafb.af.mil, DSN 787-8236, DSN Fax 986-1350
Commercial 937-257-8236, Fax 937-656-1350

AFPTEF CAPABILITIES AND TEST FACILITIES

CONTAINER TESTS:

EXAMINATION OF PRODUCT
HOISTING STRENGTH TEST (SINGLE RING)
HOISTING STRENGTH TEST (FOUR RING)
HANDLE PULL TEST
FORKLIFT HANDLING TEST
HIGH TEMP/HUMIDITY STACKING TEST
ROUGH HANDLING TEST (HOT & COLD)
VIBRATION RESONANT DWELL
VIBRATION REPETITIVE SHOCK
PENDULUM IMPACT
STRUCTURAL PRESSURE/VACUUM TEST
UN DROP TESTS (ALL FIVE)
UN STACKING TEST (HIGH TEMP)

INSTRUMENTATION
TIE-DOWN TEST
STACKING TEST
COVER LIFT TEST
PUSH/TOW TEST
LATCH STRENGTH TEST
CONDUCTIVE TEST
LEAK TEST
FORM/FIT TEST
WEIGHT TEST
STAND-OFF TEST
GASKET PULL TEST

CUSHION MATERIAL TESTS:

ELECTRO STATIC DECAY (ESD)
COMPRESSIVE SET
DYNAMIC CUSHIONING
WATER ABSORPTION
LOAD DEFLECTION/COMPRESSIVE STRENGTH

CREEP COMBUSTIBILITY PLIABILITY HYDROLYTIC STABILITY

FACILITIES AND TEST EQUIPMENT:

1. LOW TEMPERATURE WALK-IN ENVIRONMENTAL CHAMBER: (OPERATIONAL AUG 96)

TEMPERATURE RANGE: -65 to +185 degrees Fahrenheit (F) (-53.9 TO +85 degrees C)
HUMIDITY RANGE: 20 TO 95 percent (Limited by +68 degree F (+20 degree C)

dry bulb temperature and +40 degree F (+4.5 degree C) dew point

INSIDE DIMENSIONS: 8 feet (2.44m) width x 15 feet (4.57m) depth x 9 feet (2.74m) height

DOOR OPENING: 6 feet (1.83m) width x 6 feet (1.83m) height

HOIST CAPACITY: 5000 pounds (2268 kg)

2. VIBRATION EQUIPMENT:

a. VIBRATION TABLE (SERVO-HYDRAULIC): (OPERATIONAL JUNE 96)

TABLE SIZES: 48 length x 48 width (121.92 cm length x 121.92 cm width)

120 length x 48 width (3048 cm length x 121.92 cm width)

FREQUENCY RANGE: 48 x 48: 5Hz to 200 Hz

120 x 48: 5 Hz to 95Hz

AMPLITUDE RANGE: .02 to 1.0 Double Amplitude (DA)
MAXIMUM LOAD: 48 x 48: 2000 pounds (907.18 kg)
120 x 48: 1000 pounds (453.59 kg)

3. TEMPERATURE/HUMIDITY WALK-IN ENVIRONMENTAL CHAMBER:

TEMPERATURE RANGE: -65 to +185 degrees F (-53.9 to +85 degrees) C

HUMIDITY RANGE: 20 to 95 percent (Limited by +68 degree F (+20 degree C) dry

bulb temperature and +40 degree F (+4.5 degree C) dew point

INSIDE DIMENSIONS: 10 feet (3.05m) width x 16 feet (4.88m) depth x 9 feet 6 inches

(2.90m) height

DOOR OPENING: 10 feet (3.05m) x 9 feet 6 inches (2.90m) height

HOIST CAPACITY: 5000 pounds (2268 kg)

4. PENDULUM IMPACT TESTER:

CAPACITY: 5000 pounds (2268 kg)

CONTAINER MAXIMUM SIZE: 104 width x 216 length x 144 height (263 cm width x 549cm

length x 366 cm height)

5. RAIN/SALT-FOG/WIND WALK-IN ENVIRONMENTAL CHAMBER:

TEMPERATURE RANGE: Ambient

RAIN CAPABILITY: 2 or 5 inch (5 or 13 cm) rain/hour SALT-FOG CAPABILITY: 5 percent salt solution by weight WIND VELOCITY: 40 miles per hour (64 km/hour)

INSIDE DIMENSIONS: 76 width x 160 length x 78 height (193 cm width x 432 cm length

x 198 cm height)

DOOR OPENING: 62 width x 79 height (157 cm width x 201 cm height)

6. ALTITUDE CHAMBER:

TEMPERATURE RANGE: -100 to +350 degrees F (-73.3 to +177 degrees C)

ALTITUDE: Site Elevation to 100,000 feet (30,667m)

INSIDE DIMENSIONS: 48 width x 48 length x 48 height (122 cm width x 122 cm length

x 122 cm height)

7. DYNAMIC CUSHION TESTER (HARDIGG TYPE):

CUSHION SIZE: 8 x 8 (20 cm x 20 cm)
DROP HEIGHT: 90 maximum (229 cm)

STATIC STRESS RANGE: 065 to 1.6 pounds per square inch LIFT SYSTEM: Variable speed electric motor GUIDE BEARINGS: Linear ball and radial ball

BRAKES Air operated

11. CONTAINER DROP TESTER:

CONTAINER SIZE: 20 x 24 maximum (51 cm x 61 cm)
CONTAINER WEIGHT: 80 pounds maximum (36 Kg)
DROP HEIGHT RANGE: 12 to 84 (30 to 213 cm)

42

9. CONSTANT TEMPERATURE/HUMIDITY CABINET

TEMPERATURE RANGE: 18 to 93 degree C (O to 200 degree F)

HUMIDITY RANGE: 5% to 99% RH

INNER DIMENSIONS: 26 x 25 x 18 (66.04 cm x 63.5 cm x 45.72 cm)

10. DIGITAL PRESSURE/VACUUM MANOMETERS (2)

RANGE: -15 to +30 PSI

ACCURACY: ±0.03% of reading +0.01% of full scale

11. UNIVERSAL TENSILE/COMPRESSION TESTING MACHINE

CAPACITY: 35,27 oz to 30,000 pounds (1000 g - 13607.77 kg)

CROSSHEAD TRAVEL: 42.51 in (107.95 cm)

CROSSHEAD SPEED: 0.006 in/min to 40 in/min (0.015 cm/min to 101.6 cm/min)

WIDTH BETWEEN COLUMNS: 25.0 in (63.5 cm)

FULL LOAD CAPACITY: up to 4 in/min (10.16 cm/min); 25% of load capacity thereafter

ENVIRONMENTAL CHAMBER: -250 to 600 degrees F (-156.7 C to 315.6 C)

INTERIOR DIMENSIONS: 14 width x 14 depth x 34 height (35.56 cm x 35.56 cm x 86.36 cm)

12. TIE DOWN/HANDLE PULL TESTER

MAXIMUM FORCE RATING: 6,500 pounds per Actuator (4 Actuators)
ELECTRONIC READOUTS: Forces from 100 to 10,000 +/- 10 pounds

CONTAINER SIZE: Tester adjustable, Maximum 10 feet x 20 feet without special adaptation

13. PORTABLE HIGH/LOW TEMPERATURE CHEST

TEMPERATURE RANGE: -85°F to +140°F (-65°C to +60°C)

INSIDE DIMENSIONS: 13 width x 25 length x 14 depth (37.02 cm x 63.5 cm x 35.56 cm)



Rosemary Vaughan Management Assistant 257-3475 rosemary.vaughan@wpafb.af.mil



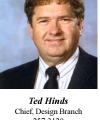
Leslie K. Clarke III Chief, AF Packaging Technology and Engineering Facility 257-2638 les.clarke@wpafb.af.mil



Sherry Buchanan Secretary 257-2979 sherry.buchanan@wpafb.af.mil



Chief, Design Branch 257-3120 ted.hinds@wpafb.af.mil





Robbin L. Miller Mechanical Engineer 257-3362 robbin.miller@wpafb.af.mil



Carey Scott Gravenstine Mechanical Engineer 257-8236 carey.gravenstine@wpafb.af.mil



Keith A. Vossler Mechanical Engineer 257-8436 keith.vossler@wpafb.af.mil



Donald Vance Model Maker 257-3734 donald.vance@wpafb.af.mil



Larry Hatter Model Maker 257-8428 larry.hatter@wpafb.af.mil



Caroline J. Buckey Mechanical Engineer 257-8434 caroline.buckey@wpafb.af.mil



Michael Werneke
Chief, Packaging Policy Branch
257-7166
michael.werneke@wpafb.af.mil



Duane Pfund
Packaging Specialist
257-4503
duane.pfund@wpafb.af.mil



Tonita L. H. Davis
Packaging Specialist
257-1984
tonita.davis@wpafb.af.mil



Joan Walker
Packaging Specialist
257-2081
joan.walker@wpafb.af.mil



Darryl K. Meade
Packaging Specialist
257-8062
darryl.meade@wpafb.af.mil



Larry Wood
Chief, Materials Branch
257-4519
larry.wood@wpafb.af.mil



Susan J. Evans Materials Engineer 257-7445 susan.evans@wpafb.af.mil



Susan J. Misra Materials Engineer 257-8061 susan.misra@wpafb.af.mil



David E. Filsinger

Mechanical Engineer

257-6971
david.filsinger@wpafb.af.mil

AFMC LSO/LOP

